STABLENET®
AUTOMATED NETWORK & SERVICE MANAGEMENT

Performance & Service

Streaming Network Telemetry:
The StableNet® solution that empowers cutting-edge infrastructures with a network and service management platform that keeps pace

Take advantage of streaming telemetry for near real-time data with a scalable and highly automated solution that opens a new world of customization and insight into the KPIs that matter most to you

Background & Motivation

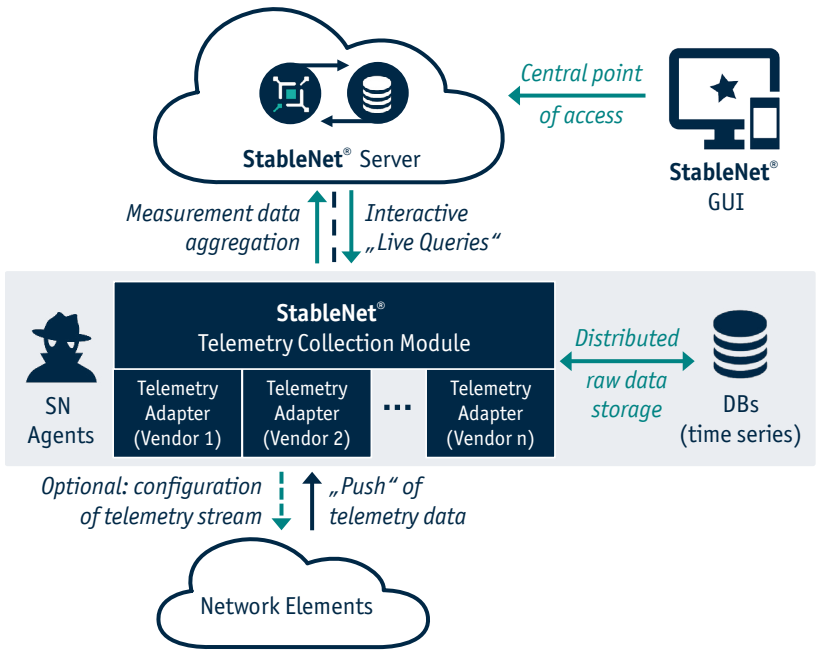
What do Industry 4.0 manufacturing, smart cities, and the explosion of IoT connectivity have in common? They all seek to automate and optimize services and processes by leveraging and making use of a massive flow of real-time data from always-on devices. Machine-to-machine communications in new mass production technologies, smart parking meters that facilitate urban planning, and the advent of 5G networking capabilities for increased wireless bandwidth are just some examples of a new world order that is defined by making sense of an incessant flow of large amounts of data and interconnectivity.

"The quality and stability of the network layer forms a crucial part of an optimal Industry 4.0 ecosystem. Disruptions in accessibility and connectivity can thus effectively nullify the advantages of an Industry 4.0 ecosystem" (Prinsloo et al, 2020, p.130)

Simply put, there are two paradigms for how network data is acquired. The first one can generally be referred to as a pull system. Using well-established protocols such as the Simple Network Management Protocol (SNMP), devices are periodically polled in order to gather data about device states. This happens at regular, pre-determined intervals usually in the range of minutes. The SNMP requests data ("polling"), events and results are aggregated, and this information is stored for later analysis. Through the use of SNMP traps, irregular and asynchronous events are pushed to the management system through an "open line of real-time communication". This is a solution that StableNet® has long since mastered across vendors.

Streaming network telemetry, however, uses a radically different solution by which network, smart, and IoT devices are able to constantly push much more detailed data out in near real-time. In the telecommunications industry, for example, having access to a much wider array of possible metrics (call quality, packet loss, connection quality, etc.) could make all the difference in successful service delivery. Due to the sheer amount of data being sent, a new approach for data mediation is needed alongside traditional methods of polling.

Figure 1: Functionality of the Telemetry Module within StableNet®



StableNet® Solution

In order to avoid overloading your StableNet® server with massive amounts of raw data, the StableNet® approach to managing streaming telemetry is scalable, customizable and highly automated. While each individual piece of time-stamped data may not provide significant insight into your network infrastructure, this data must be logged and stored for a limited amount of time in the eventuality that you need to drill down into a specific event. With a single streaming telemetry device offering more than 20,000 KPIs, a customizable and scalable solution first and foremost allows you to choose which metrics matter most to you.

With StableNet®, time series databases (TSDB) making use of modules and adapters for vendor-specific devices are able to take streaming telemetry and save them to local agents. With the StableNet® Telemetry Collector Module (STCM), the aggregated and asynchronous data is then automatically moved to your StableNet server at which point it is wholly integrated with your StableNet® platform. Analysis, insight and reports in StableNet® are not only vendor- and technology- independent, but integrate two fundamentally different paradigms for the kinds of data it can handle and how it is processed.

In addition to its traditional support of polling methods, with StableNet® support for streaming network telemetry, collected data can then be used to:

1. Set up network monitors and alerts based on pre-configured thresholds
2. Create network performance baselines
3. Plan network capacity requirements
4. Troubleshoot a much wider array of connectivity and performance issues
5. Make use of the proliferation of IoT sensors for insight and analysis
6. Use artificial intelligence (AI) to make automated decisions
7. Have much more freedom in choosing metrics and KPIs that matter

Benefits & Results

Effective and efficient network and service management requires an ability to acquire detailed information about the components and services you care about as well as an aggregated overview of this data in order to identify long-term trends, SLA-maintenance, and the suitability of your network infrastructure. The polling of network devices by protocols like SNMP is a tried-and-true methodology that has numerous, well-documented use cases. It is and will continue to be a critical protocol for network discovery. But just as each physical network constellation is different, so too are your needs regarding what information you require. Streaming network telemetry support enables a much higher degree of granularity, meaning you have access to a far more detailed analysis of your network and services should you need it.

Having a cross-technology platform that is both future-proof and can be customized to your requirements requires constant progress and improvement. StableNet® telemetry support is a critical step that gives you far greater power to choose what you need to know and when you want to know it. While the technological infrastructure continues to evolve, you need a network and service management platform which is able to provide insight into your array of network devices and to help assure optimal performance by being able to choose the technology that makes the most sense to you. With StableNet®, you can feel secure knowing that you have a customizable solution for the entirety of your network infrastructure, regardless of what tomorrow brings.

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